

**IN THE CLAIMS:**

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 35 and 46 and ADD claims 47-49 in accordance with the following:

1.-34. (Cancelled)

35. (Currently Amended) An optical amplifier comprising:

a plurality of optical amplification mediums for producing a gain, the gain having gain-characteristics;

a gain controller constantly maintaining the gain for each optical amplification medium; and

a gain-equalizer positioned after each optical amplification medium, and equalizing the gain-characteristic of the optical amplification mediums, each gain-equalizer equalizing ~~the gain-characteristics of the preceding optical amplification medium~~each output light of the preceding optical amplifier medium and passing light with a predetermined wavelength band, the light of the predetermined wavelength band having flat optical power characteristics.

36. (Previously Presented) An optical amplifier according to claim 35, wherein the gain equalizers have nearly the same equalizing characteristics.

37. (Previously Presented) An optical amplifier according to claim 35, wherein the optical amplifier has nearly even gain characteristics.

38. (Previously Presented) An optical amplifier according to claim 35, wherein the optical amplification mediums are made of erbium doped fibers.

39. (Previously Presented) An optical amplifier according to claim 35, wherein the constant gain of the optical amplification mediums is associated with an inversion ratio of about

0.8 to about 1.0 within the amplification medium.

40. (Cancelled)

41. (Previously Presented) An optical amplifier according to claim 35, wherein the gain equalizer obtains equalized gain within a wavelength-band from about 1490 nm to about 1530 nm.

42. (Previously Presented) An optical amplifier according to claim 35, wherein each gain equalizer attenuates gain at a peak wavelength.

43. (Cancelled)

44. (Previously Presented) An optical amplifier according to claim 35, wherein each gain equalizer produces an output, and the output has a nearly even gain characteristic.

45. (Cancelled)

4546. (Currently Amended) An optical amplifier, comprising:

a plurality of optical amplification mediums for producing a gain, the gain having gain-characteristics;

a gain controller maintaining a constant population inversion ratio for each of the optical amplification mediums; and

a gain-equalizer positioned after each optical amplification medium, and equalizing the gain-characteristics of the optical amplification medium, each gain-equalizer equalizing the gain-characteristics of the preceding optical amplification medium each output light of the preceding optical amplifier medium and passing light with a predetermined wavelength band, the light of the predetermined wavelength band having flat optical power characteristics.

47. (New) An optical amplifier, comprising:

a plurality of optical amplification mediums, each producing a gain with a gain-characteristic;

a gain controller controlling the gain-characteristic of each of the optical amplification mediums with substantially equal gain-characteristics; and

a plurality of optical gain-equalizers respectively positioned after each optical amplification medium equalizing each output light of the preceding optical amplification medium and outputting a subsequent output light, of a predetermined wavelength band, having substantially flat power characteristics.

48. (New) An optical amplifier according to claim 47, wherein each of the gain-equalizers pass light having flat power characteristics within the predetermined wavelength band and minimize gain outside of the predetermined wavelength band.

49. (New) A method of optical amplification, comprising:  
producing a plurality of gains with a plurality of optical amplification mediums, each gain having a gain-characteristic; and  
equalizing each output light of a preceding optical amplification medium and outputting a subsequent output light, of a predetermined wavelength band, having substantially flat power characteristics.